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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/814,695	03/30/2004	Tae-Woong Koo	INTEL1510 (P18520)	7238

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EXAMINER

YU, MELANIE J

ART UNIT	PAPER NUMBER
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1641

DATE MAILED: 12/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/814,695	Applicant(s) KOO ET AL.	
	Examiner Melanie Yu	Art Unit 1641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 September 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 and 8-46 is/are pending in the application.
- 4a) Of the above claim(s) 14-46 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                                        |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                            | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

### **DETAILED ACTION**

1. Applicant's amendment filed 29 September 2005 has been entered. Claim 1 is currently amended. Claims 14-46 have been withdrawn. Claim 7 is cancelled. Claims 1-6 and 8-46 are currently pending in this application.

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-6 and 8-13 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The amendment to claim 1 recites "preparing an aqueous solution having room temperature" in part a, of the claim. However, the original specification fails to specify the aqueous solution prepared at room temperature. The amendment to claim 1 also recites the dissolving of metal cations and reducing agent at room temperature in part a of the claim. It is noted that the original specification discloses mixing a solution of water and silver nitrate and then adding sodium citrate in example 1 of the original specification and is silent to the temperature at which the solution is mixed. However, the original specification fails to disclose dissolving metal cations and reducing agent at room temperature.

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-4, 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Siiman et al. (US 5,945,293) in view of Kidwell et al. (US 5,384,265).

Regarding claims 1-3 and 8, Siiman et al. teach a method for producing metallic colloids comprising: heating an aqueous solution to about 90°C, which is encompassed by the recited about 95°C, for about 30 minutes, wherein a metal cation (silver nitrate) present in an aqueous solution at a concentration of 0.589 M and a reducing agent (sodium citrate) present at a concentration of 1.36 M (col. 12, lines 56-57), which is encompassed by the recited range of metal cations and reducing agent each present at a concentration of at least 0.5 M. However, Siiman et al. fail to teach the order of the method steps recited for the preparation of an aqueous solution.

Kidwell et al. teach a method for producing metallic colloids comprising: preparing an aqueous solution having room temperature (solution has not yet been heated, and is therefore at room temperature), the aqueous solution including metal cations (platinum chloride) and a reducing agent (ascorbic acid) by dissolving, at room temperature (solution is still not heated), the metal cations and the reducing agent in water (col. 6, lines 56-61; col. 10, lines 28-33); and then heating the aqueous solution with an oven to near boiling at 85°C (col. 6, lines 61-64; col. 10, lines 33-35), which is encompassed by the recited about 95°C, in order to an effective way to provide colloidal metal particles onto which biomolecules can be adsorbed.

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute for the method steps for preparing colloidal particles of Siiman et al., the method steps for preparing colloidal particles as taught by Kidwell et al., in order to provide an method of producing particles wherein the size can be controlled and conditions that better attach biomolecules, such as proteins, to colloids.

With respect to claim 4, Kidwell et al. teach the aqueous solution heated 90 minutes (col. 10, lines 33-35), which is encompassed by the recited at least 60 minutes.

Regarding claim 9, Kidwell et al. teach attaching an organic molecule to the surface of the metal colloids (col. 6, lines 64-68).

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Siiman et al. (US 5,945,293) in view of Kidwell et al. (US 5,384,265), as applied to claim 1, further in view of Smith et al. (US 2004/0234958).

Siiman et al. in view of Kidwell et al., as applied to claim 1, teach a method for producing metallic colloids and heating using an oven, but fail to specifically teach the use of microwaves.

Smith et al. teach temperature control of heating metallic colloids using a microwave generator (par. 87), in order to provide efficiency when mixing solutions.

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to include in the method of Siiman et al. in view of Kidwell et al., heating using microwaves as taught by Smith et al., in order to provide faster heating.

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5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Siiman et al. (US 5,945,293) in view of Kidwell et al. (US 5,384,265), as applied to claim 1, further in view of Strohmaier et al. (US 6,640,970).

Siiman et al. in view of Kidwell et al., as applied to claim 1, teach a method for producing metallic colloids wherein heating of an aqueous solution is performed by an oven to heat to 85°C, but fail to specifically teach a convection oven.

Strohmaier et al. teach a convection oven to heating a solution to a temperature of 85°C to produce colloids.

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to use for an oven in the method of Siiman et al., a convection oven as taught by Strohmaier et al. One having ordinary skill in the art would have been motivated to make such a change as a mere alternative and functionally equivalent heating technique and since only the expected heating effect would have been changed and the same heating temperature would have been obtained. The use of alternative and functionally equivalent techniques would have been desirable to those of ordinary skill in the art based on the economics and availability of equipment.

6. Claims 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Siiman et al. (US 5,945,293) in view of Kidwell et al. (US 5,384,265), as applied to claims 1 and 9, and further in view of Bieniarz et al. (US 5,736,624).

Siiman et al. in view of Kidwell et al., as applied to claim 9, teach a method for producing metallic colloids and attaching an organic molecule to the surface of the metallic colloids, but fail to teach the organic molecule containing sulfur.

Bieniarz et al. teach attaching an organic molecule of cystamine, which has a disulfide moiety, a molecular weight less than 500 Da, and contains sulfur, to a protein (col. 10, lines 19-54), in order to functionalize a protein and provide a crosslinking agent.

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to include in the method of Siiman et al. in view of Kidwell et al., functionalizing proteins attached to metal colloids with cystamine as taught by Bieniarz et al., in order to an effective and efficient method of providing a stabilized protein that resists structural distortion and denaturation using electrophilic groups.

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-13 have been considered but are moot in view of the new ground(s) of rejection. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of applicant's amendment requiring the new limitation of preparing an aqueous solution having room temperature and dissolving metal cations and a reducing agent at room temperature.

### ***Conclusion***

7. No claims are allowed.

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Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie J. Yu whose telephone number is (571) 272-2933. The examiner can normally be reached on 8am-4:30 pm Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on (571) 272-0823. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

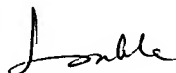


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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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12/07/05